National Park Service
Alaska Inventory & Monitoring Program

# Digital Photograph Management Strategy for the Alaska Inventory and Monitoring Program

***DRAFT***

National Park Service
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Southeast Alaska Network

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**Acronyms:**

| | |
|---|---|
| AKRO | Alaska Regional Office |
| AKSO | Alaska Region Support Office |
| dpi | Dots per inch |
| GIS | Geographic Information System |
| GPS | Global Positioning System |
| I&M | Inventory & Monitoring (Program) |
| NPS | National Park Service |
| RBR | Resource Biological Resource Division |
| RCR | Resource Cultural Resource Division |
| RER | Resource Environmental Resource Division |
| RGR | Resource Geographic Resource Division |
| RPR | Resource Physical Resource Division |
| RTCA | Rivers Trails Conservation Assistance |



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## Table of Contents

# I. Introduction

The Inventory and Monitoring Program is tasked with organizing and maintaining a variety of research information, including digital images collected as data and images taken to document protocols and procedures. Concurrently, there is a growing need to make all NPS digital photos useful and available service-wide. Whether for the I&M Program or for other NPS projects, this document describes a management strategy to organize, store, name and retrieve photographs in electronic format. The intent is to centralize processing and storage, reduce wasted disk space and to make photos available to all NPS employees.

**Assumptions and Definitions:**

- This document refers only to photographs in an electronic format.
- In this document 'digital photo' refers to a photo in electronic format, regardless of how it was acquired, by scanning or from a digital camera.
- 'Photo processing' is used in this document to refer to the sum total of all steps necessary to go from a photo on your camera's storage card to the photo library.
- 'Documented' photos refer to photos that have completed metadata in either the parks photo database or a project database.



Photos are taken and used by NPS personnel for a variety of purposes. NPS photo users vary tremendously in their knowledge and access to imaging software and hardware. While it is impossible to anticipate every use/collection scenario, most photos should fit into one of the general "photo type" categories defined below:

- Library Photos. These photos are final products that have been edited, documented, reviewed and added to the parks/regions/NPS digital photo library. Metadata for these photos is stored in a central database using approved software. These photos can be used for multiple purposes by a variety of staff. They are public domain.

- Working photos. Photos in this category are "works in progress". Working photos should be documented and moved into the parks photo library or they should be deleted. Metadata for working photos does not exist but is in progress. Working photos are stored in centrally located employee specific folders adjacent to the park photo library.

- Data Photos. Data photos are photos collected as data. Examples include: 1) site specific photos documenting a shoreline classification and, 2) photos taken as part of a maintenance facilities assets inventory. Data photos are collected as part of a well-defined data collection protocol. Metadata for these photos is stored in a project

level database. Data photos are stored in the project folder structure. Representative, unique and instructive data photos should be added to the parks digital photo library.

- Special Collections Photos. Occasionally there are special collection photographs, such as from a famous photographer or from an expedition or an archives collection.

- Aerial Photos (orthographic photos, not oblique snapshots out of an airplane door or window). These are usually produced professionally by a contractor, where very clear specifications are made. Digital aerial photos standards are discussed but are beyond the scope of this document to be described in detail.

**Digital Photo Cycle:**
The "digital photo cycle" typically runs through the following steps. Photos are acquired, stored, viewed, renamed, edited, documented, stored in a photo library, archived and, in some cases, deleted. Some of the issues and questions which crop up along the cycle include:

- Acquisition
  - Digital cameras – What is the best quality and size?
  - Scanning images – What parameters to use?
- Processing
  - Download and Storage – Where? For how long? Naming standards?
  - Viewing – With which software? Or as contact sheets?
  - Renaming – Manually or batch? Naming standards?
  - Editing – Which software? Should you write over the master or make a copy?
  - Documenting – Which attributes should be documented? How is the documentation 'attached' to the photo?
- Long-term Storage
  - On-line storage – Where? Managed by whom? For how long?
  - Off-line storage and archiving– Where and when? When to delete?

This document will attempt to address these questions and provide logical standards and guidelines to facilitate good photo management. This document discusses imaging standards and how digital photos will be stored in a repository, documented and cataloged. Figure 1 summarizes the general photo management process.

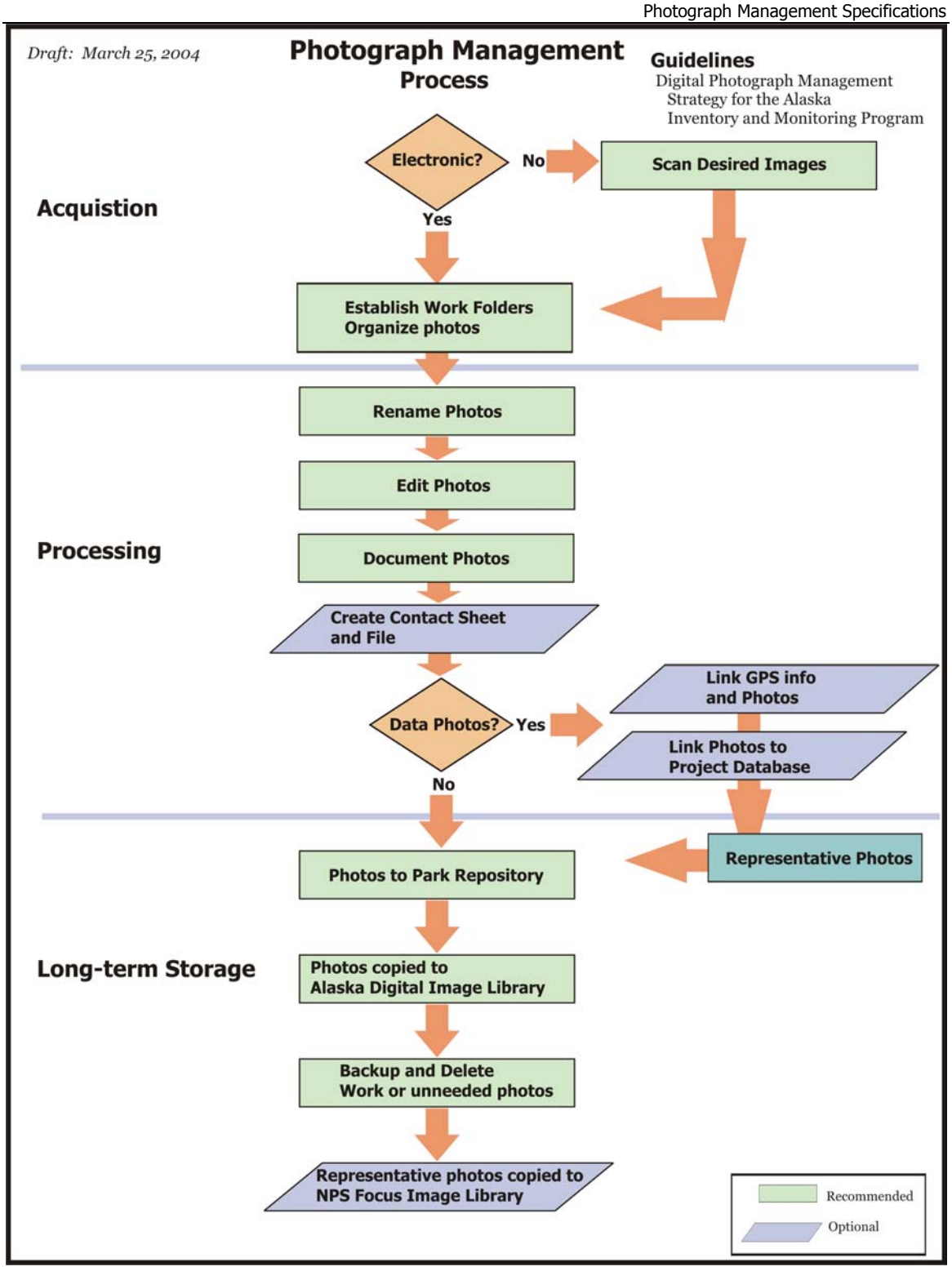



Figure 1: Photograph Management Process

# II. Acquisition

## *Digital Camera Specifications*

Digital cameras should be set at a resolution appropriate for the highest level use to which a photo may be used.

Publication quality photos should be taken at a minimum of 5 megapixels. If the camera will allow, the resolution should be set at 1760 x 1168 or higher. The quality should be set for "super fine" or "high".

> ***Tip! Why 5 Megapixels?***
> A 5 megapixel file is 2560 x 1920 or 2560 pixels wide by 1920 pixels high. Doing the math is 2560 x 1920 = 4915200 or in photo speak, 5 megapixels.
>
> A 4 megapixel file is really very detailed and would work for most publication needs. This becomes an issue, however, when you need to crop the image. Having that extra detail will help maintain the high quality.

Because the destination of a photo is unknown at the time it is taken, it is recommended all photos be taken with this resolution or for lower resolution cameras, the highest resolution possible. It is best to decrease the resolution for web use or thumbnails in the office using software.

Most digital cameras can digitally imprint the date and time onto the photo image. In general, it is recommended that this feature not be use. Date and time data are embedded in jpg and tiff file headers by most digital cameras. If the image is being cataloged and documented it has value – imprinting the image reduces the image quality and hence the image value. The exception may be for projects collecting massive numbers of photos – imprinted dates and time could facilitate data linking.

Digital camera internal clocks are subject to minor cumulative errors. Accurate camera date and time is important to maintain, it is recorded as the file creation date for each photo and for jpg formats it is embedded in the photo itself. It is best to frequently sync a camera time to an active GPS or to the network time. Beware of time zone changes where appropriate.

Different brands of digital cameras name photos differently. Typically the camera will have several file naming options. These may include:

- Sequential numbering which resets each time a memory card is formatted or a new card is put in.
- Sequential numbering which loops from 0001 to 9999.
- Numbering based on date-photo sequence.

As a general rule, the most useful setting is a date-photo sequence, then the 0001-9999 loop and the least useful the card based sequence. Projects must carefully review the naming options of the project cameras for the most useful convention. Projects must also ensure the same convention is used by all cameras collecting data photos.

## *Scanning Specifications*

### Print Material Types

The resolution is selected based on the size of the original. The smaller the photo, slide, or other material, the higher the resolution should be used to acquire a detailed scan.

Below are the **minimum** recommended scan resolutions for different formats. Higher resolution scans will yield larger and better quality images.

- **35mm color slide or negative**
  (scanner should be set up to scan transparent materials - both hardware and software)
  - Choose source size of approx. 1.3 x .85 inches (software should auto-detect this exact dimensions)
  - Choose target size same as original
  - Choose resolution 2400 dpi, 24 bit color (do NOT use 32 or 48 bit color)
  - Save as uncompressed TIF file
  - scan to yield file size approximately: yields file size approximately 3120 x 2040 pixels, file size 15-20MB
- **3 1/2" x 5" color photograph**
  - Choose source size 3.5 inch x 5.0 inch (software should auto-detect the exact size)
  - Choose target size the same as the original
  - For color photo, choose resolution 600-700 dpi, 24 bit color (do NOT use 32 or 48 bit color)
  - For black & white photo, choose resolution 600-700 dpi, 8 bit grayscale (do NOT use 16 bit grayscale)
  - Save as uncompressed TIF file
  - scan to yield file size approximately: yields file size approximately 3000 x 2100 pixels, file size 15-20MB
- **4" x 6" color OR black & white photograph**
  - Choose source size 4.0 inch x 6.0 inch (software should auto-detect the exact size)
  - Choose target size the same as the original
  - For color photo, choose resolution 600 dpi, 24 bit color (do NOT use 32 or 48 bit color)
  - For black & white photo, choose resolution 600 dpi, 8 bit grayscale (do NOT use 16bit grayscale)
  - Save as uncompressed TIF file
  - scan to yield file size approximately: yields file size approximately 3600 x 2400 pixels, file size 15-20MB
- **5" x 7" color OR black & white photograph**
  - Choose source size 5.0 inch x 7.0 inch (software should auto-detect the exact size)

    - Choose target size the same as the original
    - For color photo, choose resolution 600 (450 if controls allow it) dpi, 24 bit color (do NOT use 32 or 48 bit color)
    - For black & white photo, choose resolution 600 (450 if controls allow it) dpi, 8 bit grayscale (do NOT use 16bit grayscale)
    - Save as uncompressed TIF file
    - scan to yield file size approximately: yields file size approximately 4200 x 3000 pixels, file size 20-25MB for color
- **8" x 10" color OR black & white photograph**
    - Choose source size 8.0 inch x 10.0 inch (software should auto-detect the exact size)
    - Choose target size the same as the original
    - For color photo, choose resolution 300 dpi, 24 bit color (do NOT use 32 or 48 bit color)
    - For black & white photo, choose resolution 300 dpi, 8 bit grayscale (do NOT use 16bit grayscale)
    - Save as uncompressed TIF file
    - scan to yield file size approximately: yields file size approximately 4200 x 3000 pixels, file size 20-25MB for color
- **8 1/2" x 11" typewritten/printed paper**
    - Scan at resolution 300 dpi or 400 dpi if the text has very small print
    - Save as uncompressed TIF file
- **9" x 9" aerial photograph**
    - If possible scan from diapositive transparencies rather than prints
    - Scan at resolution 1200 dpi or as high as possible/feasible
    - Scan with sharpness set to extreme
    - Save as uncompressed TIF file



## III. Processing Overview

Effectively dealing with hundreds of photos requires consistent downloading, naming, editing and documentation. This section describes the general process for managing photos and will provide additional information for each type of photo as defined in the Introduction.

After the images have been acquired, either by digital camera or scanning, the general processing of photos are as follows:

A. Establish a file organization for photos
B. Rename the photos
C. View, delete and edit the photos
D. Document the photos
E. Prepare photos for on-line long-term storage or off-line archiving.

More “how to” details on organization and processing are specified in the Appendices.

**Special note for Data Photos**: Data photos are photos collected as part of a documented data collection protocol. The project's data processing protocol should contain a detailed section on processing data photos. This protocol should include information, such as:

- File folder structure conducive to data entry and linking.
- Photo naming standard conducive to data entry and linking.
- Field collection method for uniquely linking each photo to its related field data sheet/record.
- Consistent photo database that facilitates linking of photos to the projects data.
- Step-by-step procedural documentation.

# A. Organization

## *Original and Edited Photos*

Raw, unaltered photos should be carefully preserved. The names of folders containing raw photos should clearly indicate that the folder contents are unedited originals. Raw photos folders may include multiple photos of the same subject, blurry pictures, or other less desirable photos. This original set of photos should be preserved as is. Copies of raw photos should be saved in clearly named folders for review and editing. For example:

/Subject_A
    /Originals – raw, downloaded photos, including poor photos
    /Edited –photos which have been processed: renamed and edited.



## *Working Photos*

It is unlikely that a photo will go directly from the scanner or camera exit port to the library photo folder or to the project data repository where it will live forever. Photos need to be processed before they are ready to be used in a database or in the photos library.

Photos being processed, or working photos, should be stored either in a workspace within a specific project or within a user's photo library, depending on the individual parks. Some parks provide excellent centralized park server, while others struggle with networking.

Example directory:

\Working_Photos
    \User_A
        \Photo_SetA_Name
            \Originals
            \Edited
        \Photo_SetB_Name
            \Originals
            \Edited

## *Data Photos*

**Project Data Photos:**
Photos taken as part of a project's data collection protocol are project data that need to be organized, documented and preserved in conjunction with all other project data. Project data photos should be organized and contained within the project folders. Detailed project protocols should define how and where photos are downloaded, edited and rolled up into final folder locations.

It is recommended that a park select a specific method of organizing data photos within project folders to maintain some consistency from project to project. For example:

\Project_A
    \Data
        \Photos
            \Originals
            \Miscellaneous
            \DataPhotos

It is recommended photos **not** be stored or embedded within a MS Access database. A photo linking tool between the photographs and the database should be used.



**Miscellaneous Project Photos:**
Incidental or opportunistic photos taken by project personnel are not data photos and can be managed as miscellaneous photos. Miscellaneous photos taken as part of a project should be stored in the project miscellaneous photos directory. This allows the photos to stay with the project, but does not confuse photos that are data related. These photos may be further processed to become "Library" photos. Photos of interest to a greater audience should be copied to the Park Digital Image Library.

## *Library Photos*

Library photos are public photos readily available to be used for a variety of purposes. High quality photos are encouraged where possible, but may also include lower resolution photos. These photos have been reviewed, processed, documented and ready to be stored in a digital photo repository.

Library photos are organized by logical theme keywords related to the parks. The generic organization structure template is lengthy and subject to updates. For handy reference, it is presented in Appendix C. Each park may delete or rearrange the structure for its needs. It is encouraged the folder names remain the same, however, in order to provide some consistency in search functions.

For example:

\PARK
    \Photo_Library
        \...
        \Natural_History
            \Animals
            \Astronomy
            \Bogs
            \Caves
            \...

If the park does not have any caves, this directory might be deleted.

## B. Image Naming Standards

In an ideal world all image file names would be unique and informative straight out of the camera. Until this is possible we will often be faced with the task of renaming photos.

Because of the scope and quantity of images being loaded in one place, NPS Focus requires unique, descriptive names. Images must be given very specific file names that will continue to uniquely identify them for the coming decades.



Adding a description within the image file name will help make the file intuitive and easy to select. However, when dealing with a large number of photos, this can seldom be maintained and should be reserved only for small sets of photos, library photos and miscellaneous photos. The photography industry uses thumbnail browses and keywords to retrieve photos and NPS personnel are encouraged to adopt these types of tools.

Using a category from a set list as part of the image file name also helps to make files intuitive and easy, as long as the files can unmistakably be categorized. Using categories for files that may fall in more than one category can make this naming style problematic.

If photo quantities are small it is practical to individually rename photos. Software which can 'batch' rename dozens to hundreds of photos is available and should be used where appropriate. In some cases, renaming photos may be most efficient as a two part event – one step performed as a batch process which inserts the park code and year at the beginning of the photo name and a second step which adds a descriptive component to the name as a manual edit on a photo by photo basis. Organizing photos by topic in folders can make batch renaming with descriptive names possible. See the cheat sheet on batch renaming in the Appendices.

When dealing with hundreds of photos, such as in the case of data photos, descriptive naming is neither practical nor useful and photo file names should

either be retained as produced by the camera or batch renaming without descriptive components should be used.

| |
|---|
| In all cases, photo names should not use spaces or special characters. Try to keep file names less than 20 characters. |

Following are naming standards for photographs, depending on the type of photo and the long-term repository of the photo. The long-term repositories are further described later in this document in Section IV.

## *Library Photo Naming Standards*

There are three long-term repositories for library photos:

1) Park Digital Libraries
2) Alaska Regional Digital Library
3) NPS Focus Digital Library (NPS servicewide)

These are further described later in this document in Section IV.

### Alaska Region and Park Digital Libraries

#### Purpose:

The Alaska Regional Digital Library is the regional central repository. In a future time, the digital library may evolve to a decentralized structure. In either case (centralized or decentralized), naming standards at the park and region should be similar to facilitate proper management.



**Instructions for Assigning Image File Names**

The image file name should consist of two parts:

1. A brief description of the image
2. A sequential number

**Examples:**

BlackBearFace_025.jpg
ExitGlacierCamp_001.jpg
ExitGlacierCamp_002.jpg

Note: Park Code and year are inherent in the directory structure. If they are not, they should be included in the photo name.

### NPS Focus Digital Library

#### Purpose:

The NPS Focus Digital Library represents the first NPS effort to maintain a central repository of pictorial and textual digital content service-wide. Digital files may be searched from NPS Focus website. As such, service-wide naming guidelines have been provided.

**Instructions for Assigning Image File Names**

The image file name should consist of three of four parts:

1. The park code (e.g. SWAN, ANIA, ALAG, KATM, KEFJ, LACL)
2. A brief description of the image

3. The date of the image written as YYYYMM
4. A numeric extender for multi-part and multi-page items

Each of the first three parts is separated by a hyphen and the forth part by an underscore. Multi-part and multi-page items consist of:

1. Multiple images associated with one record (such as multiple angels of the same monument)
2. Multiple pages of an item that has been scanned.

Note that all sections of the file name have been separated by a hyphen. When an item being digitized consists of multiple parts, the main filename should be followed by an underscore and part number beginning with _1, _2, _3, etc.

**Example:**
LACL-VascularPlants-2001.jpg
KATM-Trident-1999_1.tif
KATM-Trident-1999_2.tif
ALAG-FreshFish-200206.tif

## *Data Photo Naming Standards*

These naming guidelines are designed for projects which collect hundreds if not thousands of photos.

File names should assist in the linking of the projects data and the photograph. Project needs may be driven by site, time, specimen, or method. Projects with a limited number of photos (<50) may elect to be descriptive with file names. Projects with larger number of images (>50) may elect a sequential image naming standard. Provided here are various examples. In all cases, images should follow these guidelines:

- Document the naming standard used. This should be done in the projects Data Processing Protocol.
- No spaces in the file name; generally less than 20 characters
- Park code and year should either be included or conclusive by the directory structure.
- Use underscore to separate components



### Option 1

**Instructions for Assigning Image File Names**
Park code and year are assumed conclusive by the directory structure.

The image file name should consist of four parts:

1. The month and day (MMDD)
2. The camera id
3. incremental, unique photo id (restart at 001 for each day)
4. Time (HHMM)

**Examples:**
0729_A001_0830a.jpg
0729_A002_0830a.jpg
0729_A003_0838a.jpg

## Option 2:

**Instructions for Assigning Image File Names**
Park code and year are included in the file name.

The image file name should consist of four parts:
1. The park code (e.g. SWAN, ANIA, ALAG, KATM, KEFJ, LACL)
2. The year of the image written as YYYY
3. Project Code or description
4. Photo number ID

**Examples:**
KEFJ_2001_Lichens_1.jpg
KEFJ_2001_Lichens_020-36.jpg
LACL_2001_VPlants_001.jpg
LACL_2001_VPlants_002.jpg
ALAG_2003_SiteA_001.jpg
ALAG_2003_SiteA_002.jpg
ANIA_2003_WQSurpriseLake_001.jpg
ANIA_2003_WQMeshikLake_001.jpg

# *Special Collections*

## Archive Photos

### Purpose:

In some cases, NPS Archives may scan images and store them electronically. They generally consist of legacy images that were already within the archives. These are usually images that were not previously generated electronically by the project. These photos are tied to a particular accession and catalog number, and hence, the image name reflects these numbers.



Images from more recent projects are provided to NPS Archives, usually on a media such as a CD or DVD. In this case, it is the CD itself that is being archived with an accession and catalog number, and not the individual images.

## Archive Image Naming Standards

**Instructions for Assigning Image File Names**
The image file name should consist of three parts:
1. The park code (e.g. SWAN, ANIA, ALAG, KATM, KEFJ, LACL)
2. 5-digit Accession Number, assigned by authorized staff
3. 5-digit Catalog Number, assigned by authorized staff

**Example:**
LACL_00301_00001.jpg
LACL_00301_00002.jpg

## Known Collections

### Purpose:

Some photos are known special collections, such as photos from a famous photographer, a historic expedition, or well known library collection. These may be treated as a special collection.

### Collections Image Naming Standards

Naming standards for these collections will depend on the collection. In general, file names should consist of:
<Park code>_< year>_<collection>_<SequenceNumber>.jpg

**Example:**
KLGO_1920_SW104.tif
ANIA_1930_ HubbardB_0001.jpg

## *Aerial Photos Naming Standards*

### Option I:

**Instructions for Assigning Image File Names**
The image file name should consist of five parts:

1. Year
2. Roll
3. Flightline
4. Frame
5. Scanning level



Note: Most aerial photos are stored as TIFF or MrSID.

**Example:**
970122035-12ext.tif
Where year = 1997, roll = 01, flightline = 22, frame = 035, and scanning level = 1200 dpi extreme resolution.

# C. Image Viewing and Editing

Software to view and edit photographs are plentiful and are subject to individual preference. Because of this, no specific software is being recommended at this time.

To ensure consistent results and procedures, multi-year projects collecting photos as data should select a standard program to view and to edit photos. Standard software is also a fundamental project requirement to ensure a useful photo processing protocol. Standard software also facilitates communications between project personnel and minimizes confusion.

### *Viewing*

Thumbnails give a quick icon view of many photos so photos may be quickly selected visually. It is recommended that 1) a quick viewing software or database be used to look at thumbnails, captions, descriptions, dates and keywords, and where appropriate, 2) a contact sheet of these thumbnails be printed for quick reference.

### *Editing*

At a minimum, photos should be edited as follows:

- Poor quality photos should be deleted, except where the subject is highly unique.
- Medium quality photos should be assessed against existing photos of the same subject in the park photo library. If the photos duplicate the subject with no enhancement of quality or perspective, the photo may not be worth saving and should be deleted.
- Photos should be rotated to portrait or landscape.
- Photos should be rotated to make the horizon level.
- Photos of people should have 'red eye' removed.
- Photos should be cropped to remove edge areas that grossly distract from the subject.

Large groups of photos acquired under sub-optimal exposure or lighting can be batch processed to enhance contrast or brightness. Batch processing can also be used to resize groups of photos for use on the web.



Detailed suggestions for editing may be found in the Appendices of this document.

## D. Image Documentation and Cataloging

Images should be documented and cataloged. Documentation, or metadata, provides the minimum information a user will need to appropriately use the photo. Cataloging provides a collective means for searching, finding, and retrieving photos.

### *Software*

A variety of software is available to facilitate this process. NPS does not yet have a standard software package to document, catalog and effectively use photos at the park level. Various software packages are under review, some are in use at various parks across the nation.

All software or combinations of software should meet these minimum requirements:

- Meet the minimum metadata
- Ability to add additional fields, as desired

- Ability to establish a template of these fields
- Ability to create a thumbnail view
- Ability to search
- Ability to do basic functions like rotate, zoom, pan

Realistically a combination of software and databases may be used. For example:

- Use ThumbsPlus for quick view of photographs and printout of contact sheet
- Use a park specific photo database, using the AKSO photo link tool
- Use Photoshop for modifying photos to desirable size, rotate, eliminate private information (license plates, addresses)

## *Minimum Metadata Attributes*

All photos should be documented with these minimal metadata attributes:

- File name (usually inherent)
- File location (usually inherent)
- Storage Location of the original/hardcopy/negative
- Description
- Photographer, Contributors, or Archive Institution (all that apply)
- Collection Name, if applicable (historic and archives)
- Publisher
- Date Taken
- Format/Size/Source
- Type of Media of original
- Subject
- Keywords
- Park Code
- Place
- Any necessary credits
- Distribution Restrictions, such as copyright or sensitivity



Digital photos capture some metadata and will hold this information in an EXIF file that stays with the photograph until the photograph is modified. These include:

- File name
- Aperture
- Date Digitized
- Date Taken
- Exposure Bias
- Exposure Time
- F-Number
- Flash (yes, no)
- Focal Length
- ISO Speed
- Light source

- Metering Mode
- Shutter Speed

Additional Attributes may include (IPTC standards):

- Special instructions for how the photo was taken
- Subject distance
- Caption writer
- City, State, Country
- Equipment make
- Equipment model
- Object name

If the image is processed, for example cropped or modified in Photoshop, the following attributes should be documented:

- Height
- Width
- Artist
- Artist Copyright
- Creating Software
- Date
- Model of printer intended

Special Note for Data Photo Metadata
Projects should store data photo metadata attributes in the appropriate relational tables of the project database. Project databases should contain at least the minimum metadata requirements listed here.



# IV. Long-term Storage

## *Originals and Interim Photo Storage*

Once the photos have been processed and have reached a logical milestone, original photos should be archived onto a CD-ROM and labeled as originals. Other project interim photos may be backed-up using normal project back-up procedures and deleted. Any working photos, such as those in PhotoShop, may be maintained at the user's discretion. Users should be considerate of disk space, however, and should use CDs or DVDs to backup files not frequently used.

## *Data Photos Storage*

Projects with data photos that can be viewed via an Access database can serve the database and photos out to all NPS sites via the NPS wide-area network. Each project must assess the need and utility of making its data widely available.

Projects with data of interest to the public can deliver the complete database and data photos via a CD or DVD.

High value projects may choose to make the project data and photos available via a custom web application.

As the project reaches a milestone, such as when a report is written, photos should be reviewed for samples of interest to a greater audience. This may include scenic views, animals, activities, methods, equipment, or facilities. If the project includes multiple pictures of essentially the same method or item, all needed for the project, select a few that are representative. These representative photos should be copied to "library" photos.

## *Library Photo Storage*

Once the photos are documented, they should be made available within one of the digital image libraries and cataloged (park, region or national). Parks maintain the parks image catalog. The network data manager or other designated photo contact staff will maintain the Alaska Image Library and the NPS Focus Image Library.

Library photographs will be stored in one of the following digital libraries:

- Locally – on the park or division shared drive.
- Regionally – at the Alaska Region Digital Imagery Library
- Nationally – at the NPS Focus Digital Image Library or the Inventory and Monitoring Natural Resource Image Library



### Park Digital Image Library

Depending on the park, a park digital image library may or may not exist. This document suggests that all parks establish a centralized digital image library that all divisions agree to use and maintain. The library should centralize the location of all working photos in a park wide 'Working_Images" folder. Employees should be provided with the necessary software and training to enable them to process and document photos into park's photo library.

To facilitate the development of park photo libraries, we have developed detailed park-level photo processing procedures and a photo library folder template.

The processing procedure is presented in Appendix A as a generalized procedure and in the other Appendices as step-by-step, software specific instructions (cheat sheets).

The folder template is designed to capture all photos from all parks in the NPS. The folder template contains many folders that are not relevant to many parks. The folders should be used as a starting point for a park's photo library. Before using this folder structure, a park should review it and delete folders which are irrelevant to the park.

The folder template and more information about it are available at:
http://www.nature.nps.gov/im/units/swan/index.cfm?theme=SWAN_specifications#Photos

Some parks may not have the network resources to support a centralized park photo library. In this case the park personnel should try to process photos on their local machines and publish them to the regional library as frequently as possible.

Parks are encouraged to designate one individual (the highest volume photographer perhaps!) as a low-key, low-time commitment 'Photo Manager'. The photo manager principle duties would simply be to know the photo cataloging software well and to encourage personnel to do good photo management. The photo manager could also act as a liaison with regional and network photo managers.

## Alaska Region Digital Image Library

The intention of this library is to provide a statewide repository that can share the organization, management, and access for images. This Library is stored on the Read-only X drive that is distributed to all of the parks, similarly to how the GIS data is distributed. As network connections improve, the library may become a virtual library, where images are housed on park servers while providing easy access to the rest of the region.

The Alaska Region Digital Library consists of public images.

Images to include in this repository are:

- Final images significant to the park/region
- Final representative images from research projects
- Aerial photographs



Files are organized by Inventory and Monitoring Network, park and file name. The reason for the I&M network level is to organize the files by who will be managing or assisting in managing these files. Each I&M Network has a data manager who will have write access. The data manager will be working with staff at the service-wide, regional, and park level and can facilitate in the management.

## NPS Focus Digital Image Library

The NPS Focus Digital Library consists of a seamless integration of a metadata management system and a separate image management system. It represents the first NPS effort to maintain a central repository for pictorial and textual digital content as well as a coordinated effort to set up policies and procedures for scanning, serving, and archiving digital resources. The system is designed to support all interested NPS endeavors.

NPS Focus is a library or repository of images. It is not a multimedia application. NPS Staff and the public will use NPS Focus to search for relevant images and then link to them or download images from the library to build into a web page, PowerPoint presentation, or other application (Evans 2003).

While NPS Focus provides a solid infrastructure for image repository for the future, it is still in the early stages of development. As such, procedures for uploading and maintaining images have not been defined yet. NPS Focus also requires images to be in DjVu for MrSID formats.

Images to include in this repository are final images significant to the park/region. Files are organized by park and by file name. No other subdirectories are used.

*Inventory and Monitoring Staging Area:*
Because the procedures for uploading and maintaining images have not yet been defined, the Inventory and Monitoring Program may act as an interim to hold files, possibly process them to the required format, and link and/or move them to NPS Focus.

## V. Photograph Property and Use

All photos collected with the National Park Service funds and staff time are property of NPS. Contractors using photographs as part of their project should provide copies, preferably high resolution digital copies, to the NPS project manager.

When using a photograph, provide credit to the photographer. This is usually written on the right side of the photograph or at the bottom in a smaller font size (san serif) than the text in the document.



## VI. Photos of People and Rights to Privacy

When taking a photo of a person, the subject's right to privacy may come into play. Photos with the following criteria should seek a model waiver form:

- The person is recognizable, AND
- The person is not a government employee (on-duty), AND
- The photo will be used for profit to the photographer.

OR

- Any photos of a minor, where the minor is recognizable.

Photos with the following criteria do not need a model waiver form:

- Photos are public domain (unless protected by law)
- Photos are not for profit
- If photos are used for profit, such as in a magazine, it is not NPS who profits

In the case of NPS, it is rarely the case where a model waiver form is needed. Typically these photos are used for education and editorial purposes, where photos of subjects are acceptable.

Other violations of privacy may include:

- The photographer intruded on the person's seclusion to take the photo

OR

- Private information about the person is now made public

OR

- When the photo causes the average, reasonable person to believe something about them that isn't true.

These instances should not occur within the scope of government work.

NPS and contracting photographers should exercise the following guidelines when photographing people:

- Generally avoid photos of minors for public distribution.
- Intentionally do not identify the non-government people pictured, providing one less invasion of privacy.

## VII. Acknowledgements

Managing photos has been a challenge met by many park employees. Some have prevailed in finding solutions while others assist in the discussion. We would like to acknowledge the individuals who have come forth with their interest, enthusiasm and participation, both large and small (in alphabetical order):

Guy Adema, Judy Alderson, Doug Beckstead, Laurel Bennett, Lena Boesser-Koschmann, Nathan Borson, Jenni Burr, Melanie Cook, Joel Cusick, Lois Dalle-Molle, Greg Daniels, Nancy Deschu, Chris Gabriele, Todd Gilliom, Karl Gurcke, Meg Hahr, Peter Hamel, Bradley Harris, Linda Jeschke, Torre Jorgenson, Jim Jurgens, Beth Koltun, Fritz Koschmann, Janis Kozlowski, Helen Lons, Ian Martin, Kathryn Myers, Jim Pfeiffenberber, Joni Piercy, John Pinamont, John Quinley, Thetus Smith, Angie Southwould, Page Spencer, Billy Strasser, Bob Strobe, Nancy Swanton, Mike Tetreau, Dale Vinson, Laura Wright.

We would like to specially acknowledge the individuals who provided review and enhancements to this document: TBA

## VIII. References

Evans, Kass. 2003. National Park Service NPS Focus Image Creation and Management Guide. Draft Rev January 23, 2003. Retrieved January 7, 2004 from the World Wide Web: http://focus.nps.gov/doc/techdoc/ImagingGuide.html

Duboff, Leonard D. 1989. The photographer's business and legal handbook. Images Press, New York, NY. ISBN 0-929667-02-6.

# Appendix A. Photo Organization and Processing

The following steps provide general guidance on processing general park photos. Depending on the purpose, these may be modified as needed. Any existing park-specific photo collection protocols should be reviewed.

Data photos may need more processing and consideration. Data photos organization, storage and documentation must be carefully integrated with a project database to ensure that data photos are available and useful. Pre-built photo database tools can simplify data entry. Large multi-year projects anticipating thousands of photos should invest in custom forms to facilitate data photo entry.

### Step 1: Establish organization for photos

Under the project directory, establish the appropriate folders.

For example:
/ProjectA
    /Photos
        /Data
        /Edited
        /Misc
        /Originals

Subdirectories may be used when photos are naturally lumped together, such as by site, by time, or by purpose. This may help document larger quantities of photos.



***Tip! Glacier Bay Example:***

The GLBA Coastal Resources Inventory is a complex project which collected 20,000 photos over 6 years of field work. Immediately after downloading, photos were compartmentalized into temporary folders by field trip id and camera id to enable systematic, efficient file renaming and resizing. Once photos had been given unique names, they are copied into the annual folder (yYYYY) and entered into a database. At the end of the data processing season, temporary folders, which included the unaltered originals and processed photos, were archived and removed from the network.

Organization:
/Photos
  /y2001
  /y2002
    /FieldTrip1
      /CameraA
        /Original
        /Edited
      /CameraB
        /Original
        /Edited
    /FieldTrip2

**Step 2: Acquire images**

Follow the setup guidelines presented in the main body of the Digital Image Management Strategy for digital photos and scans.

**Step 3 Download and organize images**

Photos may be downloaded from a digital camera directly or scanned from printed photos or slides. Store digital images files in their original form in the \Originals directory and do not modify these photos. Copy photos to the \Edited subfolder, if needed. Use intermediate folders where appropriate to facilitate batch renaming and batch resizing.

**Step 3: Geolink images (optional)**

Geolinking photos is a highly efficient way to link photos to a location and to a field data collection record. If a careful, step by step data collection process is integrated with a time synced digital camera and appropriate GPS data, geo-linking software can greatly reduce photo processing time. However, the process can be involved, especially for projects collecting hundreds of photos.

See the photo linking cheat sheet in the Appendix for an introduction to the process. For more information, contact your GIS liaison.



**Step 5: Rename images**

Use a batch renaming software to rename photos in \Edited. Do this before reviewing and deleting so that photo names in \Original and \Edited are similar. Rename photos, consistent with project and park guidelines. You may elect to use your image cataloging software to rename. Create a readme.txt within the photos directory explaining the naming standards used. Some software that comes with digital cameras will rename photos as they are downloaded. Use this feature whenever desirable and feasible. However, check the effects of this these types of software downloads on the file date.

**Step 6: Review images**

Complete an initial review of the photos in \Edited folder:

- Delete any "junk photos", such as accidental photos of the sky, ground, backpack, black photos.
- Poor quality photos should be deleted, except where the subject is highly unique.
- Medium quality photos should be assessed against existing photos of the same subject in the park photo library. If the photos duplicate the subject with no enhancement of quality or perspective, the photo may not be worth saving and should be deleted.
- Orient any photos, using your preferred software. Choose your rotation software carefully – some modify the image, some change the file date. This may be particularly significant for data photos.

All data photos may need to be preserved to enable correlation of field records and sequentially numbered photos.

## Step 7: Editing Images

- Photos should be rotated to make the horizon level.
- Photos of people should have 'red eye' removed.
- Photos should be cropped to remove edge areas that grossly distract from the subject.
- If you elect to modify your images, such as cropping, color enhancing or balancing, etc. do this at this step. If you will be doing extensive modifying, you may want to save versions of the image until the modifications are satisfactory.
- If different pixel sizes of the same image is desirable, use one of the following methods:
    1. (Preferred) Keep low resolution images in a root folder and higher resolution images in a subfolder called HighRes. Low resolution images can be produced en masse with a batch processing image program.
    2. Keep resized copies within the same directory, but use a modified file name to indicate the size. For example:
       KEFJ_2003_BlackBear_001.jpg – (original size, may also include pixel width in name.)
       KEFJ_2003_BlackBear_001_p600.jpg – (600 pixels wide)
       KEFJ_2003_BlackBear_001_p100.jpg – (100 pixels wide, lower resolution. Use for web).
       This method is only recommended when there are only a few photos.



***Tip! From experience…***

While it is **very** logical to put photos of different resolution in the same folder, it is incredibly annoying when you look at the folder in a thumbnail viewer – there are two copies of everything! It makes thumbnail browsing very inefficient.

Put the low resolution (~1600 x 1200) copies in the 'root' and the high version in the subfolder. Most users seem happy with lower resolution version and never go to the high resolution folder. In reality, high resolution images are too big to leave on the network anyway.

ThumbsPlus will batch resize an entire tree to a new location or to the same location. And it will retain the keywords and user data, if you check the right box. It is quite easy to duplicate a tree or just a folder with all photos resized to the same size.

## Step 8: Catalog and document images

Using your preferred image cataloging software, such as ThumbsPlus, you are ready to create your project Collection and add metadata to your photos. This is best described in the context of a given software, so refer to the Appendix Cheat Sheets for instructions. In general, consider the following:

- Name of your project collection (short name for your project)
- Metadata elements required
- Set up features, such as user defined fields, selected list of keywords to use, etc.

### Step 9: Linking to project data (optional)

Data photos, such as site photos taken as part of a complex landcover project, should be organized in the project folder system and linked to the project database. However, this requires custom code or using the AKSO PhotoTools. Currently, this PhotoTools is in "beta" form and is not supported. Some staff, however, have the ability to support the tool and use this. This tool allows the best of both worlds: easy use of the software for thumbnail viewing, cataloging, and contact sheet printout, and; flexibility in custom made databases. Multi-year projects collecting hundreds of photographs as data should invest in using the PhotoTools and developing a the database tables and forms to assist with data photo management.

### Step 10: Posting images to the Library

As the project reaches a milestone, such as when reports are written, the images should be reviewed for samples of interest to a greater audience. This may include scenic views, animals, activities, methods, equipment, or facilities. If the project includes 60 pictures of essentially the same method, all needed for the project, select a few that are representative.



These representative images should be included in the park library. They should then be copied, using the preferred software, to the Library repository. Notify the photo manager (data manager or interpreter).

***NOTE: It is important to copy images within the preferred software. This will ensure the metadata stays with the image and is not lost.***

### Step 11: Archiving images

As with all materials from a project, images should be organized, packaged, and delivered to archives. This may consist of the following:

- CD or DVD of images
- Contact sheet of the images, with documentation
- Photos prints and negatives, if any
- Other project information, such as reports, field notes, samples, etc.

## Appendix B. Library Photos Organization and Processing

After staff have copied their images to a temporary location, the photo manager for the park will ensure the images reach their final destinations.

### Step 1: Review of temporary repository

Photo Manager should review for the following:

- Completion of metadata
- Consider any copyright or permissions issues – accept or reject.
- Acceptable quality

If there are any questions or concerns, the project manager will contact the staff.

### Step 2: Organize, rename, and modify images

- Move photos to the appropriate subdirectories, if needed.
- Rename photos, consistent with publication guidelines.
- Modify images, as needed, such as cropping, color enhancing or balancing, blurring of personal information (license plates, addresses, etc.).
- If different pixel sizes of the same image are desirable, it is recommended to keep these within the same directory, but use an extension to indicate the size.

### Step 3: Catalog and document images

Using your preferred image cataloging software, such as ThumbsPlus, enhance any metadata. For example, add hierarchical keywords, information that was normally inherent by the project directory structure.

### Step 4: "Roll-up" images

Images should be "rolled-up" to the Alaska Region Digital Image Library, and to the NPS Focus library, where appropriate. Notify the staff when this is done.

## Organization of Library Photos:

### *Alaska Region Digital Image Library*

The directories are organized by I&M Networks because it will largely be the I&M Data Manager ensuring the files are rolled-up where possible at on any service-wide datasets. These directories are organized to allow the proper permissions and management of the files.

The subdirectories include a directory for each of the parks as well as one for the network, for any general photos. There is also a MISC directory to be used for files related, but not necessarily associated with a park or network.

/Historic will vary from park to park, depending on the parks history and events.

/ParkPlaces will vary from park to park, but may include numerous photos of a popular area, such as Exit Glacier in Kenai Fjords or Brooks Camp in Katmai.

Additional subdirectories may vary from park to park, depending on the quantity of photos. For example, Katmai may have a large number of bear photos and elect to have these in its own subdirectory.



X:/Libraries/Photos

- /AKRO
  - /AKSO
  - /RCR
  - /RBR
  - /RER
  - /RGR
  - /RPR
  - /RTCA
  - /MISC
- /ARCN
  - /ARCN
  - /BELA
  - /CAKR
  - /GAAR
  - /KOVA
  - /NOAT
  - /MISC
- /CAKN
  - /CAKN
  - /DENA
  - /MISC
  - /YUCH
  - /WRST
- /SEAN
  - /GLBA
  - /KLGO
  - /MISC
  - /SEAN
  - /SITK
- /SWAN
  - /ALAG
  - /ANIA
  - /KATM
  - /KEFJ
  - /LACL
  - /MISC
  - /SWAN

**Generic Directory Structure:**
/Network/Park/

Artwork_Artifacts
- Baskets
- Blankets
- Clipart
- Dances
- Fixtures
- Furniture
- Garments
- Graffiti
- Housewares
- Jewelry
- Masks
- Musical_Instruments
- Paintings
- Petroglyphs
- Pictographs
- Regalias
- Sculptures
- Tools
- Totems
- Wallpapers
- Weavings

Cultural_Landscapes
- Battlefields
- Canals
- Farms
- Gardens
- Landmarks
- Parkway
- Towns
- Urban_Parks

Cultural_Sites
- Archeological_Site
- Buildings
- Caves
- Cliff_Dwellings
- Colonial_Habitation
- Forts
- Fountains
- Historic_Homes
- Historic_Sites
- Lighthouses
- Locks
- Memorials
- Missile_Silos
- Monuments
- Mounds
- Performance_Sites
- Plaques
- Pre-historic_Sites
- Pueblos
- Reflecting_Pools
- Statues
- Theaters
- Town_Sites
- Trading_Posts
- Traditional_Cultural_Places
- Traditional_Habitation

Divisions
- Administration
- - Property
- - TeamBuilding
- Concessions
- Cultural_Resource_Management
- Employee_Gatherings
- Interpretation
- - New Folder
- - Programs
- Maintenance
- Natural_Resource_Management
- Park_Employees
- Protection
- - Firehouse
- - New Folder
- - Training
- Training
- Volunteers_SCA
- Working_Together

Education
- Ed_Projects
- History_Association
- Interp_Programs
- Jr_Rangers
- Outreach
- Programs_Ideas
- Publications

Events
- 4th_Of_July
- BioBlitz
- Catastrophic_Events
- - Electric_Outage
- - Fire
- - Flood
- - Hurricane
- - IceStorm
- - Other
- - Tornado
- - Winter_Storm
- Celebration
- Commemoration
- Dedication
- Demonstration
- Dignitary_Visit
- Exhibits
- Festivals
- Incidents
- Martin_Luther_King_Day
- Performances
- Symposiums
- Tree_Planting
- Veterans_Day
- Workshops

Facilities
- Accessibility
- Airstrips
- Buildings
- Cabins_Public
- Cabins_Ranger
- Campground
- Campsites
- Cubicals
- Docks
- Electric_Generation
- Exercise_Equipment
- Facilities
- Fleet
- - Alternate_Energy
- - Bicycles
- - Heavy_Equipment
- - Vehicles
- - Vessels
- Fueling_Facilities
- Fuel_Storage
- Hazardous_Materials
- Hazardous_Waste
- Hydroelectric
- Inventory
- Kennels
- Kiosks
- Locks
- Marina
- Offices
- Office_Areas
- Outdoor_Lighting
- Parking
- Petrochemical
- Playgrounds
- Power_Grid
- Recycling
- Restoration
- Restrooms
- Roads
- Sidewalks
- Signs
- Stables
- Storage_Yard
- Trails
- Vandalism
- Waste_Management
- Water
- Water_Distribution
- Water_Treatment

History

Human_Use
- Archeology
- Architecture
- Colonial_Practices
- Human_Impact
- Re-enactment
- Recreation
- - Adventuring
- - Biking
- - Boating
- - Camping
- - Diving
- - Exercising
- - Fishing
- - Hiking
- - Horse_Riding
- - Kayaking
- - Mountaineering
- - Mushing
- - Other
- - Picnicking
- - Skiing
- - Snorkeling
- - Snowshoeing
- - Swimming
- - Trekking
- - Walking
- Subsistence
- Traditional_Practices
- Visitor_Activities

Management
- Actions
- Compliance
- Issues
- - Human_Impacts
- - Illegal_Activities
- - ORV_Tracks
- Research
- Surveys

Maps

Natural_History
- Alpine
- Animals
- - Amphibians
- - Birds
- - Invertebrates
- - - Anemones
- - - Bivalves
- - - Insects
- - - Zooplankton
- - Mammals_Marine
- - Mammals_Terrestrial
- - Reptiles
- - Vertebrates
- Astronomy
- Bogs
- Caves
- Coasts
- Coral_Reefs
- Deserts
- Earth_Sciences
- Esturary
- Exotics
- Fjords
- Floodplains
- Forests
- Geology
- - Fossils
- - Minerals
- Geysers
- Glacial_Features
- Glaciers_Icefields
- Karst
- Lakes
- Lakeshores
- Mountains
- Oceans
- Physical
- Plants
- - Algae
- - - Brown
- - - Diatoms
- - - Green
- - - Kelp
- - - Plankton
- - - Red
- - Conifers
- - Ferns
- - Flowering_Plants
- - Fungi
- - Lichens
- - Mosses
- - Trees_Shrubs
- Playa
- Ponds
- Prairies
- Rainforests
- Rivers
- Sanddunes
- Satelite_Images
- Seafloor
- Springs
- Swamps
- Tiaga
- Tundra
- Vegetation
- Volcanoes
- Waterfalls
- Weather_Sky
- Wetlands

Neighbors_and_Partners
- Bordering_Land
- Bordering_Public_Land
- Gateway_Communities
- Inholdings
- Local_Communities
- Local_Gov
- Neighborhood
- Partners
- - BLS
- - USFS
- - USFWS
- State
- Trans_Boundary_Parks

Park_Places

People
- Eating
- EnMasse
- Having_Fun
- Interacting
- In_Awe
- In_Repose
- In_Silience
- In_Solitude
- Learning
- Listening
- Other
- Sharing
- Subsisting
- Volunteering
- Watching
- With_Children
- Working

Rangers
- Enforcement
- Firefighting
- Investigating
- Patroling
- Responding
- Training

Safety

Scenery
- Backcountry
- Frontcountry
- Overflights
- Underwater
- Urban
- View_Points

Transportation
- Aircraft
- ATVs
- Autos
- Bicycles
- Buses_Trollies
- ORV
- Other
- Snowmachines
- Trains
- Vessels
- Cruise_Ships
- Ferries
- Private
- Tour_Boats

Visitor_Centers
- Auditorium
- Backcountry_Desk_Operations
- Displays_Exterior
- Displays_Interior
- Equipment
- Exterior
- Flag
- Front_Desk_Operations
- Interior
- Parking_Lot
- Signs
- Visitor_NPS_Interaction
- Walkways

Visitor_Services
Hotels
Kiosks
Lodges
Permited_Operations
Tour_Operators

# Appendix C – Cheat Sheets

- Set up of Image Libraries and ThumbsPlus
- Image Processing and Metadata using ThumbsPlus
- How to link GPS coordinates to digital images
- How to link digital images to MS Access database
- How to resize images for presentations
- How to set up a digital camera for the field
- Tips for taking photos in the field

## Cheat Sheet: Setup of Image Libraries and ThumbsPlus

Version date: 2004-03-23

**Author(s) of Sheet:** Bill Eichenlaub, National Park Service, Inventory and Monitoring Program, Southeast Alaska Network

**Website:** TBA

**Purpose:** Provide "how to" instructions for setting up an image library for NPS parks.

---

### Required software:

Download Photo_Library.zip from
http://www.nature.nps.gov/im/units/swan/index.cfm?theme=SWAN_specifications#Photos

Purchase ThumbsPlus Pro ver. 6 from
http://www.cerious.com

---



### 1. ThumbsPlus Pro Installation.

ThumbsPlus Pro can be purchased as a Single-user or as a Multi-user license. The multi-user licensing on a network is implemented as 'concurrent' users – if you purchase a 5 user multi-user license then 5 users are allowed to start-up ThumbsPlus simultaneously and the sixth won't be able to start the program at all. This is a good, economical way to implement ThumpsPlus because it means you do not need to purchase a license for every computer connected to your network. If you find that more that 5 users are often trying to start the program you can purchase a 10 user license. We recommend a multi-user license for sites with good networks.

During a multi-user installation you can select between four different installation types that effect various start-up and settings options. We recommend the option in which users use a common database and individual setting.

Install ThumbsPlus.

## 2 . Unzip Photo_Library.zip to your X: drive

It will create:

X:\Libraries
\Photos
\PARK
\Photo_Library
\Working_Images
\Database
\Documentation
\Folder_Templates
\XML

**Rename** \PARK by changing PARK to the four letter code for your park.

---

## 3. Have a network system administrator set the following privileges:

**\Database\Folder_Templates**

Park Photo Library Administrator = Read/Write/Change
All other users = Read



---

## 4. Complete option A or B as best describes you current situation:

Option A: New installation of ThumbsPlus.
Option B: Existing installation of ThumbsPlus with keywords or user fields or image annotations.

In the directions below when ever you are directed to type in PARK, **type in your park code,** not PARK.

---

## Step 4, Option A. New installation of ThumbsPlus.

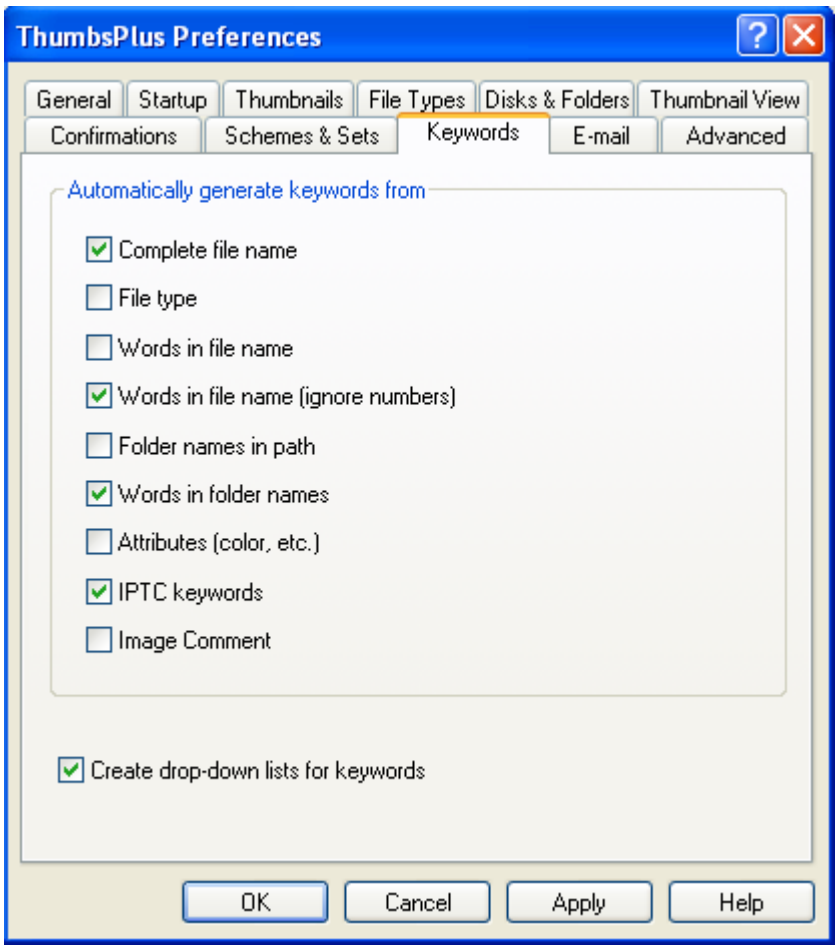
Open ThumbsPlus and choose menu items: **Options – Preferences – Startup tab**

Select radio button **Specific Folder** and type in or copy and paste in:
**X:\Libraries\Photos\PARK\Working_Images**

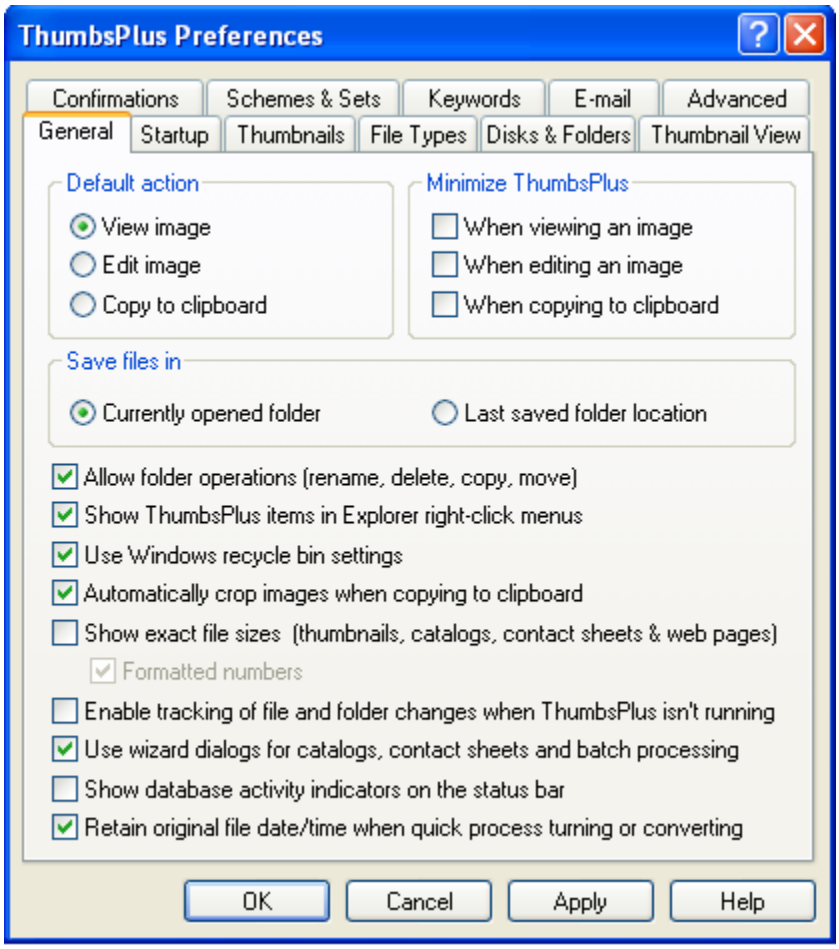
Select **Specific Database** and type in or copy and paste in:
**X:\Libraries\Photos\PARK\Database\NPS_Images.mdb**

Change PARK to your park code.

Next setup automatic keyword creation, choose menu items: Options – Preferences – Keywords tab and check the options as shown below:



Next, on the General tab, make sure “Allow folder operations” and “Retain original file date/time when quick process turning or converting” are checked.




Close ThumbsPlus and open it. You are now using the NPS Photo Library ThumbsPlus Database.

Select menu options: File, Database, Open in MS Access. In Access put table ‘UserFields” in design mode and change the Default value of the field “ParkCode” to your park 4 letter code. Save and close Access.

**Go to step 5 to setup folders.**

## Step 4, Option B. Existing installation of ThumbsPlus with keywords or user fields or image annotations.

Call your database manager or computer specialist. Merging your existing database with the NPS_Images database is not that hard, but there are few enough of these situations that we are not going to give explicit directions. Here are the steps outlined:

- Open ThumbsPlus with your normal database and follow the steps in 4A. Close TP
- Rename ..\Database**NPS_Digital_Images.td4** to : **\Database\Delivered_NPS_Digital_Images.td4**
- **Copy** your existing ThumbsPlus database to ..\Database\ and **rename it NPS_Photo_Library.td4**
- Open ThumbsPlus and make sure the settings as detailed in section 4A. If not, set them and restart TP and check them again.
- In ThumbsPlus select menu options **File – Database – Open in MS Access**
- **Import from \Database\Setup\NPS_UserFields.mdb** tables:
    - UserFieldsInfo
    - UserFields
- Append the data from **imported table UserFieldsInfo** to **UserFieldsInfo**
- Put **imported table UserFields** in design mode and **select** (keep the cursor over the record selector, shift left click) **all uf_** fields and **copy** (don't move the cursor, keep it over the record selector and shift, right click, copy)
- Put table **UserFields** in design mode and **paste** the fields in. If there are duplicated field names delete the **newly** pasted duplicate.
- Save both tables and exit Access. Open ThumbsPlus. Your old user fields and the new user fields should be available. All the old user data should be there. All the new fields will need to be filled out manually. Finish.
- Archive your old ThumbsPlus database.

## 5. Setup \Photo_Library Folders

Folder templates are in:

X:\Libraries
\Photos
\PARK
\Database
**\Folder_Templates**
**\PARK_Folders**
**\NPS_All_Folders**

As unzipped, \PARK_Folders and \NPS_All_Folders are identical. \NPS_All_Folders is there for reference and folder template back-up.

The folder templates are designed to capture all photos from all parks in the NPS.

The folder templates contain **many folders that are not relevant** to your park; however, you can delete superfluous folders:

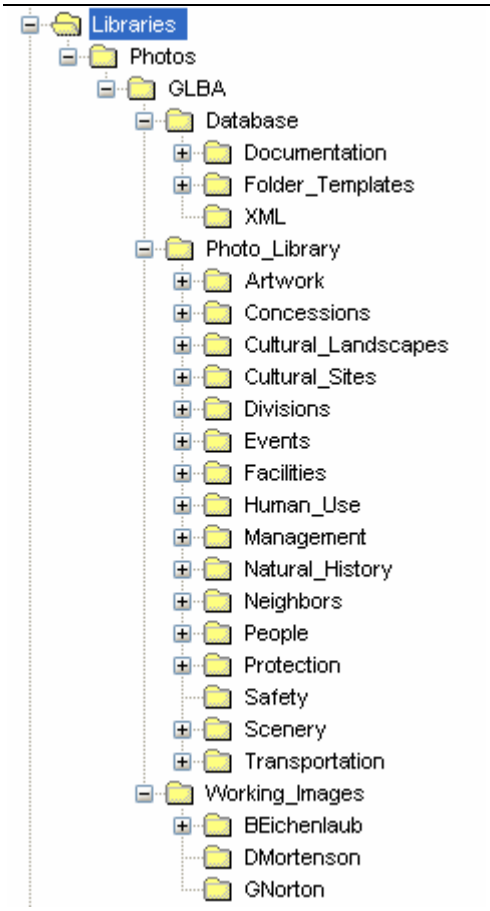
**Open ..\Folder_Templates\PARK_Folders** and **delete** sub-folders and folders **which are not relevant to your park**. Start at the upper most levels and work down toward the root. Be a little conservative. You may want to consult with several park photographers to discuss this. Try to minimize the number of new folders you add.



When finished deleting superfluous folders, **copy all remaining folders** in **..\Folder_Templates\Park_Folders** to

**X:\Libraries\Photos\PARK\Photo_Library**

This is the location where you and other park photographers will put completed, documented images. Your directory structure should now look something like this:


Libraries
Photos
GLBA
Database
Documentation
Folder_Templates
XML
Photo_Library
Artwork
Concessions
Cultural_Landscapes
Cultural_Sites
Divisions
Events
Facilities
Human_Use
Management
Natural_History
Neighbors
People
Protection
Safety
Scenery
Transportation
Working_Images
BEichenlaub
DMortenson
GNorton

## 6. Setup park personnel

For each park photographer, create a folder in ..\Working_Images with the new folder name based on their network user name:

X:\Libraries
    \Photos
        \PARK
            \Photo_Library
            \Working_Images
                \BEichenlaub
                \DMortenson
                \GNorton

Employees should setup appropriate folders conducive to their work habits; however, whenever possible they should use relevant folder names and folder trees as they are in ..\Photo_Library. This will facilitate moving finalized images to their permanent location in ..\Photo_Library. Words in folder names will be automatically added to the keyword list for each photo in that folder.

For example:

X:\Libraries
    \Photos
        \PARK
            \Photo_Library
            \Working_Images
                \BEichenlaub
                    \All_Employee_Gatherings
                        \2002-05-23_Picnic_at_Maintenance
                            \Original
                            \Edited
                        \2002-07-04_Steves_Going_Away
                            \Original
                            \Edited
                    \Boundary_Issues
                        \2002-06-16_Rink_Creek
                            \Original
                            \Edited
                    \Overflights
                        \2001-08-21_Hopkins_Lituya
                            \Original
                            \Edited
                                \PhotoLink_NAD27



While the path to the ..\Working_Images folder is rather long, ThumbsPlus is setup to open directly to ..\Working_Images. From ThumbPlus a right click on any folder name gives you a popup menu with an option to “Open in Explorer”.

"Open in Explorer" opens a copy of Explorer at the folder that was selected in ThumbsPlus. This is handy when downloading photos.

Photographers may prefer to edit photos in another program. ThumbsPlus can be configured to open photos with the system defined default editing software. To do this change ThumbsPlus menu options – Options, Preferences, General tab, Default Action from View Image to Edit Image. With this configuration a single click on a thumbnail in ThumbsPlus will open the photo file in the system default editing program. If you have a multi-user installation of ThumbsPlus beware that depending your installation type this may affect all users.

You are done with setup. Employees should be instructed to process photos in their working folder and move final, documented images from ..\Edited_Photos to the appropriate folder in ..\Photo_Library

Once or twice a year photographers should clean up their working folder and archive Original and Edited photos. This will free up disk space, helps to keep photos organized and keeps the parks digital library up-to-date.

---

## Alternate Folder Structure

If your park photographers find the above folder structure to lengthy, try this instead:



X:\Libraries
\PARK_Photos_Database
    \PARK_Photos_Library
    \PARK_Working_Images

---

## Storing Working_Images on Local Computers

If a park's computer network is non-existent, un-reliable or if network space is limited, park photographers can store their photos on their assigned work computer. Folder structure should be as described above. Finalized, documented images should be uploaded to the park's digital library whenever possible.

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## Corrections or Updates to these Instructions:

Please send corrections or updates regarding these instructions to Bill Eichenlaub, Glacier Bay National Park at bill_eichenlaub@nps.gov

## Cheat Sheet: Image Processing and Metadata using ThumbsPlus

Version date: 2004-03-26

**Author(s) of Sheet:** Bill Eichenlaub, National Park Service, Inventory and Monitoring Program, Southeast Alaska Network

**Website:** TBA

**Purpose:** Provide how to instructions for processing an image and adding metadata using ThumbsPlus.

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This document assumes you are using:

**ThumbsPlus Pro** ver. 6 with the **NPS_Images.mdb** database as described in: Southwest Alaska Network & Southeast Alaska Network (2004). *Appendix xx: Setup of Image Libraries and ThumbsPlus*. In *Digital Photograph Management Strategy for Alaska Inventory and Monitoring Program*. National Park Service, Inventory and Monitoring Program.



**This document is intended for all general park photographs** and is not intended to be used for 'data photos' as described in the Alaska I&M Digital Image Management Strategy. The guidelines presented here can be used to help develop a comprehensive data photo management strategy.

**Definitions:**
*Photo project* – a group of related photos stored together in a descriptively named folder. Example:

..\2004_01_12_MLKing_Day_Events

and

..\2004_02_28_Hopkins_Lituya_Overflight

---

### Introduction

NPS photos are taken for many different reasons and intents. The following guidelines try to present useful procedures for processing and documenting photos but are not all inclusive. The standard approach described below creates a folder called \Original for unaltered photos and a folder called \Edited

Here are three hypothetical photo processing scenarios:

You have field notes associated with photo file names as produced by the camera. Many of the photos are of a similar appearance so differentiating one from another may be difficult; therefore you must be careful to not rename and loose the file name information that links to your field notes. In this case you would immediately copy all photos from \Original to \Edited and rename and edit only in the \Edited folder.

You have photos of a non-critical nature, such as an all-employee gathering and you don't anticipate major edits to the originals. In this case you might choose to not create sub-folders \Original or \Edited and to download directly to your photo project working sub-folder.

You have been taking scenic shots trying to get some really good photos for an interpretive publication. You bracketed many scenes and have many photos that will not be used. You anticipate using a photo editing software to refine the best photos. In this case you might want to download and rename all photos in \Original, then work through all photos in \Original, copy only the best shots to \Edited and do all your edits to the files in \Edited.

The directions below are for the most complex case – that in which all photos are copied to both \Original and \Edited. But keep in mind the other possible scenarios as described above.



## 1. Download Your Images

In your \Working_Images folder create a folder or folder structure with a short descriptive name for the photos to be downloaded. Then create subfolders called \Original and \Edited.

Example:

X:\Libraries
\Photos
\PARK
\Working_Images
\BEichenlaub
\Overflights
\2004_02_08_Outer_Coast
\Edited
\Originals

Download your images to ..\Original and then copy from \Original to \Edited

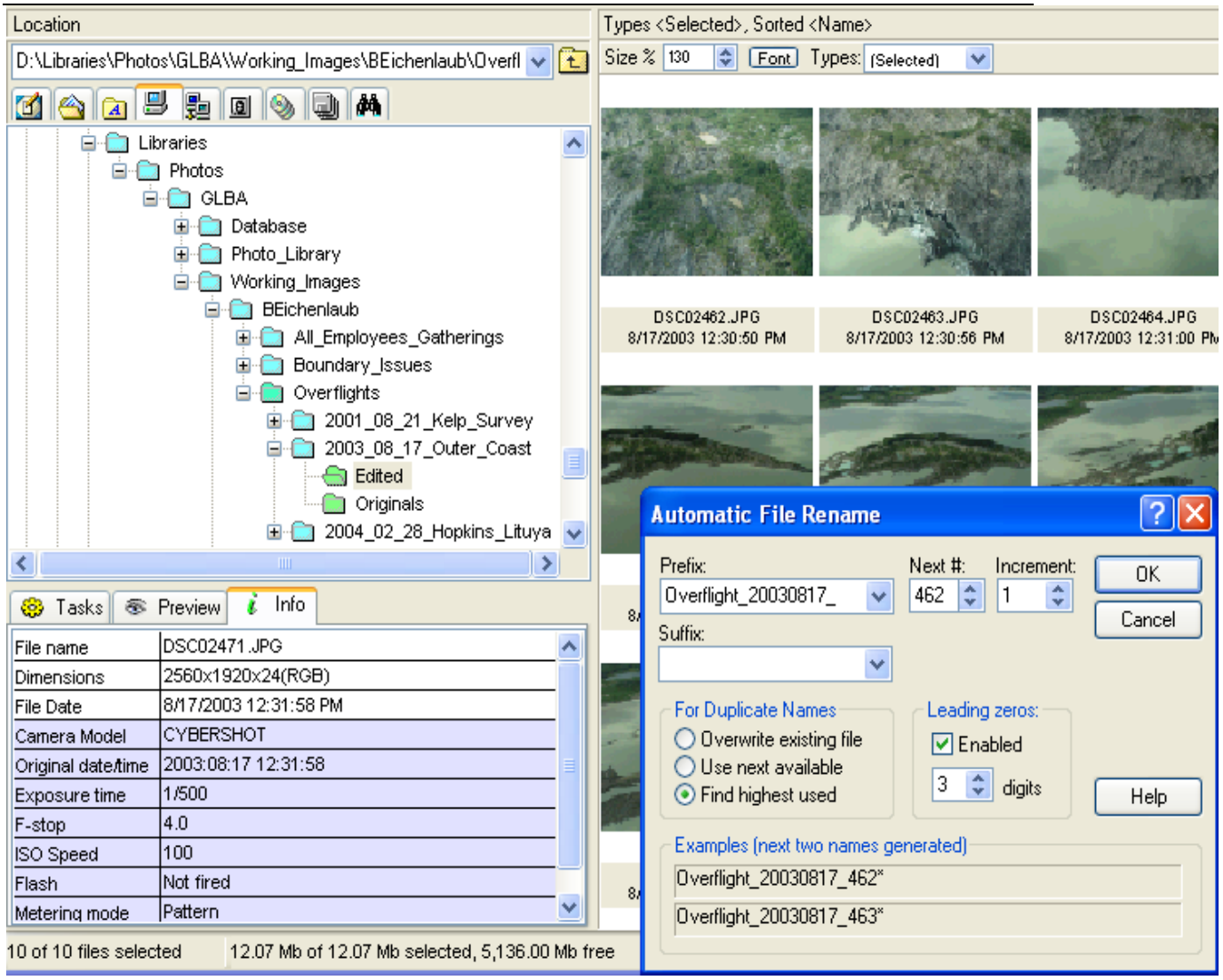
Some digital cameras come with proprietary software that assists with downloading, naming, rotation and panoramic creation. You should use the software if it provides useful features.

## 2. Rename Files

To rename files in ThumbsPlus select the thumbnails you want to rename and choose menu options: File – Auto Rename

Enter a prefix that applies to your photos. In the example below we used "Overflight_20030817_" but depending on your situation you could have used something like "GLBA_ Overflight_20030817_" or just "Overflight_".

Notice in the example below that we used a Next # value starting at 462. This will generate names containing a number that will be the same as the last three digits of the camera file name. We could have started at 001. Both methods would have produced a unique number for every photo in this photo project. By starting at 462 it is easier to find the originals by file name if necessary.

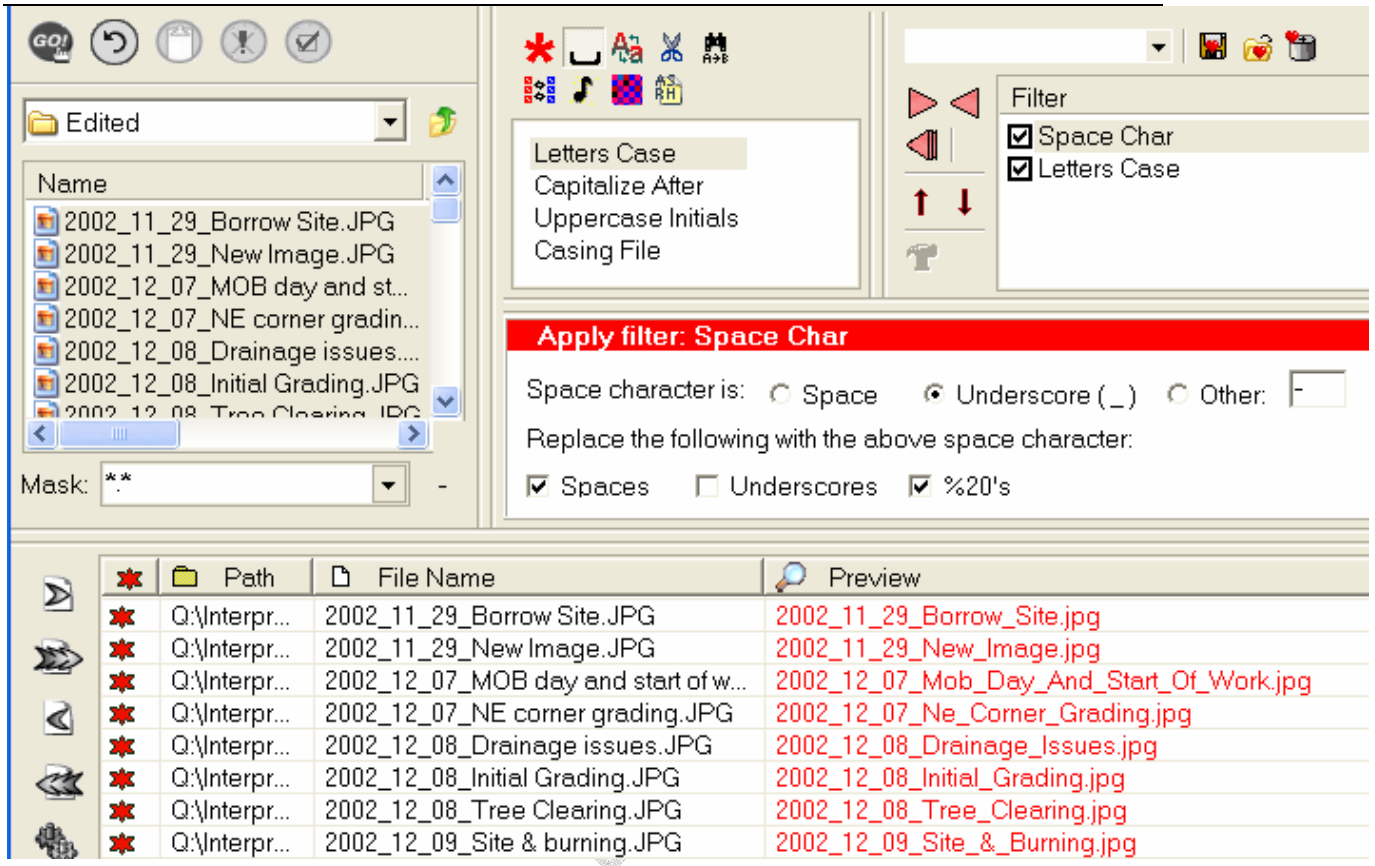



It is significant that we are **renaming before reviewing** files. If you review the photos and delete junk before renaming, the automatic increment feature used above to sync edited names with original names will not work.

You can quickly rename hundreds of files using automatic rename. You can rename all photos in your photo project folder all at once or you could rename groups of selected photos until all photos in a photo project folder are renamed.

After renaming with ThumbsPlus notice that the file date and time were not changed. (If yours are changed, check your setup: Options, Preferences, General tab, Retain Original Date should be checked.)

For more custom renaming you need to use other software. In the screen shot below, Magic File Renamer (http://mfr.queryweb.com/) changes file names by replacing spaces with underscore characters.




## 3. Rotate Photos

In ThumbsPlus review the entire set of thumbnails and select photos that need to be rotated right 90 degrees (use CTRL-Left click to select non-adjacent thumbnails). Then, while keeping the cursor over one of the selected files, right click and choose popup menu item: Quick Process, Turn 90 degrees CW (which is clockwise). Follow a similar procedure for counter clockwise rotation.

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## 4. Delete Unwanted Photos

Review photos in the \Edited folder by selecting the folder in the ThumbsPlus Explorer and clicking the slide show button or pressing F8. When you see a photo you don't want to keep, press the comma key, this will 'tag' the image. When all photos are reviewed, escape the slide show. Select menu options Edit, Select by, Tagged. All the images you tagged for deletion should now appear selected. Press the delete key to delete them.

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## 5. Edit Photos

Photos may be edited in any software. If you only need to rotate and crop, ThumbsPlus works well. Irfanview is great for really large files such as aerial

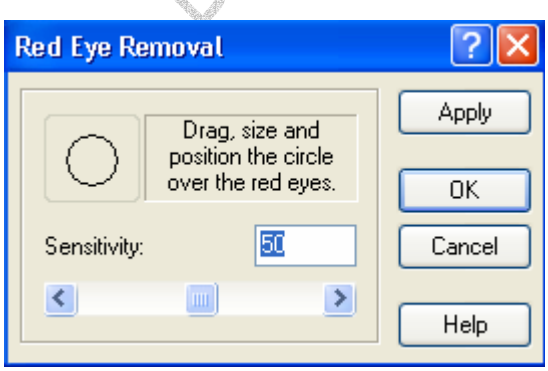
photo scans. For simple edits and annotations we use Paint Shop Pro (because it is quick to load) and for complex photo adjustment we use Photoshop (because it can do anything). Fireworks is tightly integrated with Dreamweaver hence is good for web centric photographers.

**Rotate to Perfectly Horizontal**
To correct minor but annoying imperfections in a photos rotation, double click on a thumbnail in ThumbsPlus to view the photo in the ThumbsPlus Viewer. Select menu items: **Transform, Rotate to Line**. Place the **cursor** on the visible **horizon** line, **depress and hold down the left mouse button** and **move the mouse along the horizon** line to another point the let the left mouse key up. Press the **Enter** key. The photo will be perfectly rotated to this horizon line. (It will also work if you draw the line along a straight tree trunk or telephone pole!)

Then select menu items: **Transform, Trim to Proportion, 4:3 (screen)**. This will place a **sizable selection mask** over the **extreme edges** of your photograph. Size the mask by **dragging it from the corners** inward until the black edging produced by the rotation is **outside** the mask. Press enter to crop. Save.

**Red Eye Removal**
Double click on a thumbnail in ThumbsPlus to view the photo in the ThumbsPlus Viewer. Zoom in to the face with the red eye. Choose menu items, **Image, Remove Red Eye**. Drag the circle in the Red Eye Removal dialog to the offending red eye. Size the circle by dragging the circle edge to the pupil. Adjust the sensitivity. Click Apply when it looks good. Repeat for the other eye. Save






**Crop Out Distracting Edges**
To crop out edge areas that grossly distract from the photo subject, use Transform, Trim to Proportions as described above, one of the other Transform Trim options or just rubberband a selection box then choose menu items Transform, Crop to Selection.

**Batch Processes**
ThumbsPlus can batch edit selected files. The example photos in this document were taken through an airplane window which significantly reduces contrast. Here are the steps that we took to batch edit the files in the example:

Menu option: Image, Batch Process, Next, Next, Add, Image, Adjust Colors, Hue tab, Saturation: +1, Lightness: +15, Contrast: +8, OK, Output Format: jpg, Child Folder: type in S1_L15_C8, Finish, OK

While you can achieve a much nicer image by carefully editing each photo with a more sophisticated photo editor, this sort of **batch edit is useful** if you have **hundreds** of photos suffering from similar acquisition conditions.

Note that **batch editing processes** can be saved as a **'Batch Set'** and quickly applied to any group of photos via menu items: **Image, Quick Batch**, choose your batch set name.

Editing will usually change the photo file date and time. To **set the file times back to the time the photos were taken**, select the appropriate files then use menu options: **Image, Batch Process, Next, Next, Add, File info, Set File Date, EXIF date and time**. Then set the remaining dialog box options to either overwrite existing files or create new. If you are only changing the file info it is usually OK to overwrite.

## 6. Consolidate Edited Photos

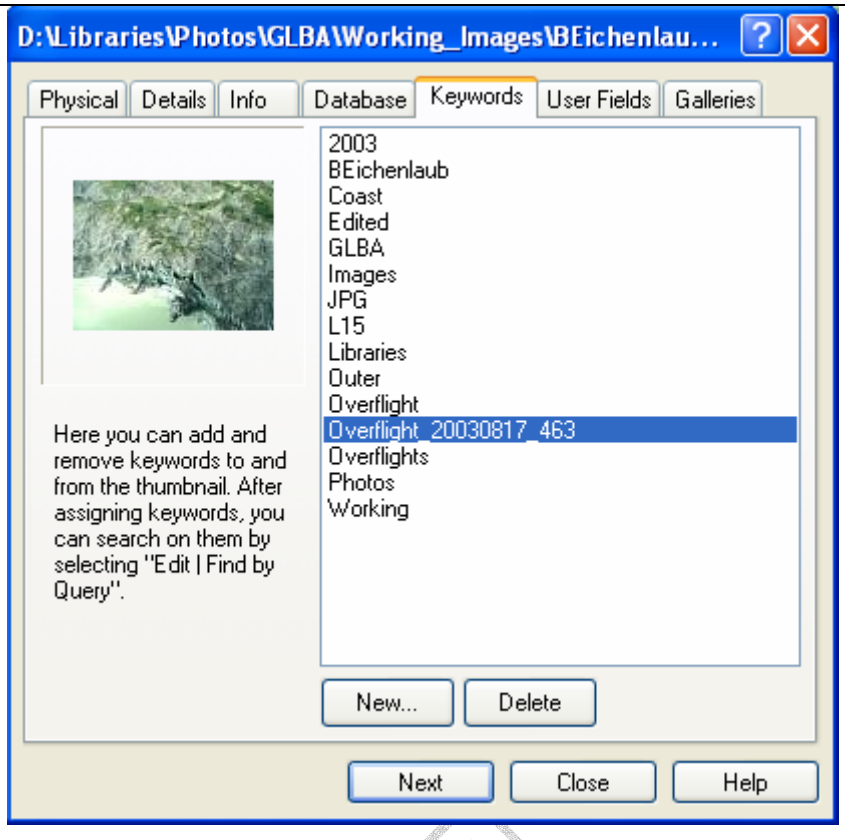


Before moving on to photo documentation it is best to consolidate your edited photos. Review them again and delete photos that are not worth publishing or keeping. If you have created multiple folders of edited photos as we did above, delete the intermediate files. In the case above you would delete all files in \Edited, then move all files in \Edited\S1_L15_C8 to \Edited and then delete empty folder \Edited\S1_L15_C8.

If you are using ThumbsPlus as your database it is best to delete files from within ThumbsPlus – this will keep the database clean and your ThumbsPlus explorer uncluttered.

## 7. Removing Pre-built Keywords

We setup ThumbsPlus to build keywords from words in path names and file names. To view these keywords, select all the files in your photo project folder, right click and choose popup menu item Properties, Keywords tab. For our example photos it looks like this:




At this point all files in your photo project folder should have the same keywords except for the file name keyword. If you edited files in other folders and moved them here, the old folder name words will also be in the list. In the example we see that L15 is left over from our work in folder \ S1_**L15**_C8. You can delete the L15 keyword manually from this dialog box for each file by selecting "L15" and clicking on Delete then Next to move to the next file. In this case **it is more efficient** to Close the Properties dialog box, **select all thumbnails**, **right click**, choose popup menu item **Remove Keywords**, select keyword L15 and click OK.

## 8. Assign keywords

You can assign keywords from the Properties, Keyword tab by clicking on the New.. button. However, if you want to **assign the same keyword to multiple files** it is more efficient to, **select only the thumbnails** you want to have the **same keyword**, **right click** while keeping the cursor over one of the selected thumbnails, choose popup menu item **Assign Keywords, Other** and type in the new keyword. It will be assigned to **all selected** files. In our overflight example we would follow this procedure to assign a generalized location keyword to groups of photos in our \Edited photo project folder.

*Tip!* For determining keywords, visit the NPS Natural Resource Thesaurus at: http://www1.nrintra.nps.gov/nrbib/index.cfm

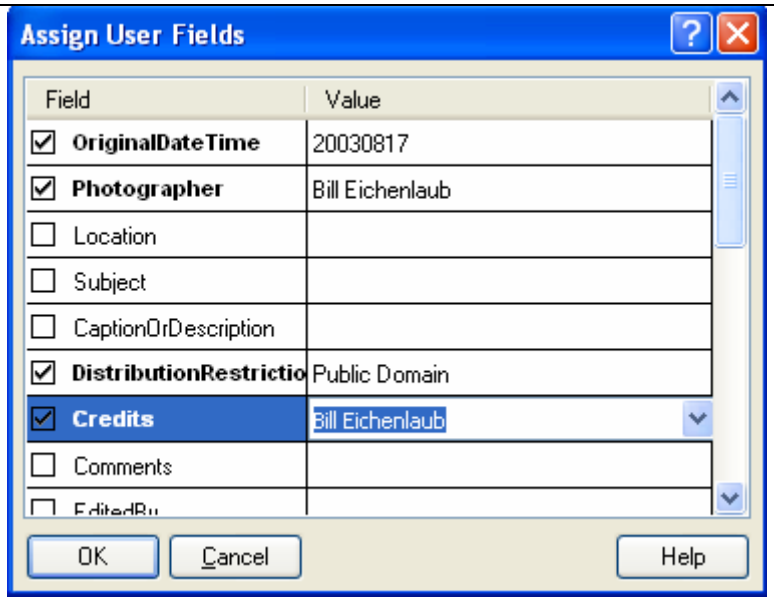
## 9. Assign user field data.

NPS_Images.mdb contains the following user fields:

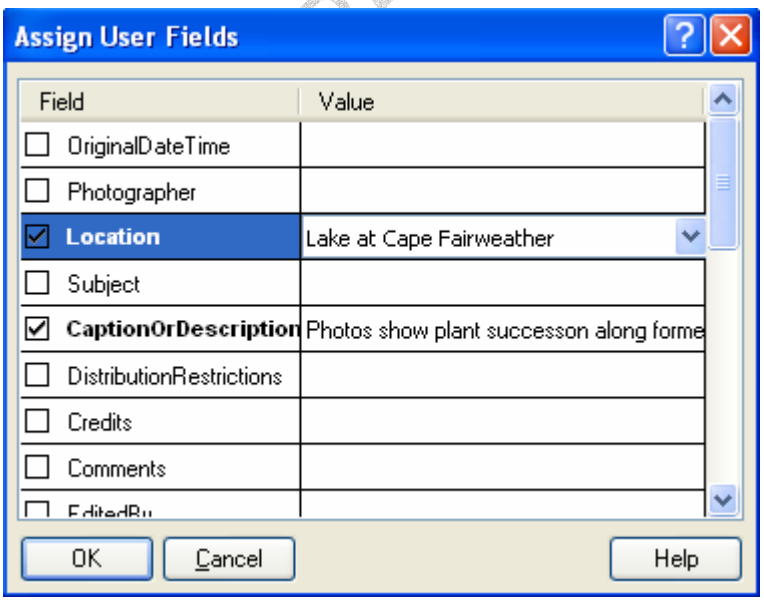
| NPS User Fields | |
|---|---|
| **Field Name** | **Use** |
| OriginalDateTime | All Photos, Scans, Collections |
| Photographer | All Photos, Scans, Collections |
| Location | All Photos, Scans, Collections |
| Subject | All Photos, Scans, Collections |
| Description | All Photos, Scans, Collections |
| Quality | All Photos, Scans, Collections |
| DistributionRestrictions | Defaults To “Public Domain” |
| Publisher | Defaults To "NPS" |
| ParkCode | Defaults To Your Park |
| Credits | Optional |
| Comments | Optional |
| EditedBy | Optional - Edited Photos |
| EditDate | Optional - Edited Photos |
| EditingSoftware | Optional - Edited Photos |
| EditProcess | Optional - Edited Photos |
| MediaOfOriginal | Optional - Special Collections Only |
| CollectionName | Optional - Special Collections Only |
| StorageLocationOfOriginal | Optional - Special Collections Only |
| ArchiveInstitution | Optional - Special Collections Only |
| Contributors | Optional - Special Collections Only |
| Longitude | Optional |
| Latitude | Optional |
| Datum | Optional |
| ProjectCode | Optional – Project Code, such as Accession Number |
| FolderYear | Optional – Subfolder organized by year |
| FolderEvent | Optional – Subfolder organized by event, such as a day |

To assign user field data, start by selecting all thumbnails in your photo project. Choose main menu option Thumbnail, Assign User Fields (the short cut keys to this dialog are CRTL – U which is worth remembering).

Because **we selected all photos** the Assign User Field data dialog **will assign** the **values** you type in **to all photos**. This is useful for many fields (Photographer, Edited By, Datum etc.) but **not** for others (Location, Subject). Type in data only for the appropriate fields. Click OK.

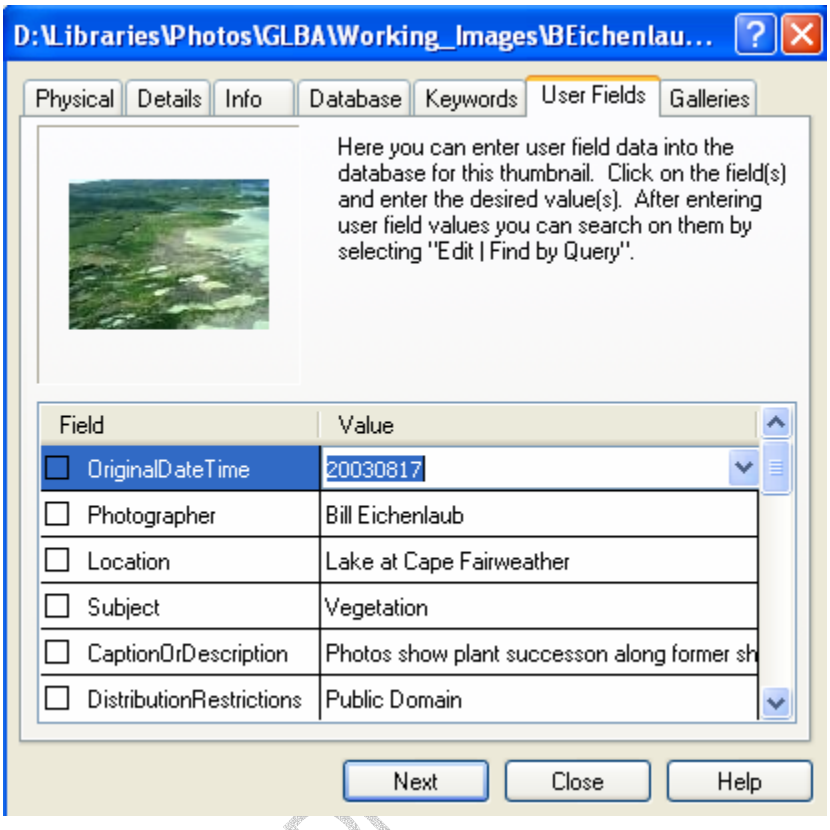



Next, **select** only those thumbnails that will share **the same subject data**, type data value into the Subject field and click OK. Then select the next group of subject photos and assign data and repeat the process until all photos have subject data. Be careful, **previously assigned data will not appear** in the dialog box. If you type something to a field containing data, the existing data is **overwritten**.




By selecting photos in appropriate groups multiple user fields can be filled quickly.

When all data fields are filled, select all thumbnails, right click, Properties, User Fields tab and review the user field data for each photo. You can also type in specific data as you view the user field data.




## 10. Move or copy to Photo_Library

Finalized, documented photos should be moved to the appropriate folder in the parks digital library in ..\Photo_Library. For the example we've been using that would be folder:
X:\Libraries\Photos\GLBA\Photo_Library\Scenery\Overflights\2004_08_17.

**You must always move or copy photos with keywords or user data using ThumbsPlus – you want the keywords and user field data to be retained.** If you use Explorer to move documented photos you will loose the keywords and data field data.

You may need to create a new folder in ..\Photo_Library for your photos or you can put them in an existing folder.

In the example data we moved the photos to their own sub-folder under \Scenery\Overflights. First we created a new folder in the Photo_Library and copied the photos there by selecting the thumbnails, then while holding the CRTL key down and dragged and dropped the files into the Photo_Library folder. After

verifying that the files, keywords and user data were copied to the new location, the files in \Edited were deleted.

## 11. Use Those Keywords and User Fields!

The beauty of keywords and user fields is that you can do a search (menu items Edit, Find by Query) for various combinations of keywords and user fields and the **results are delivered as thumbnails** in the Found Files portion of the ThumbsPlus file explorer! And, the search criteria are saved as a "Found Files" list so you never need to construct the query again, just update it (**right click on a found file list** and choose popup menu item: **Requery Now**). Once you get a lot of photos in you database you may find that you don't browse folders at all. Instead you may just browse thumbnail lists based on pre-built query results.

## Cheat Sheet: How to link GPS coordinates to digital images

Version date: 2003 (update expected in spring 2004)

**Author(s) of Sheet:** Joel Cusick, NPS/AKSO

**Website:** http://www.nps.gov/gis/gps/aksogps/

**Purpose:** Description of linking GPS coordinates with digital photos.

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# What you need to Hitch GPS with Digital Photos

Alaska Support Office GIS Team
http://www.nps.gov/gis/gps/aksogps/ (NPS-wide Intranet)

*GPS* – Purchase a recommended Garmin GPS
*Digital Camera* – A modern camera purchased within the last three years
*GPS PhotoLink software* – One of several software available. A $229 software purchased from here
*Cables:*

- Cable to connect the GPS to PC
- Cable/transfer card to move digital images to PC



**Steps: Here are the bare minimum setups to accomplish the task.**

GPS: Set up as follows:

- Turn on GPS outside. Initialize - Let stand for 20 minutes to collect almanac.
- Set time to local time – watch out for the switch to daylight savings time!
- Set Interface to Garmin Protocol
- Clear all active tracks and waypoints
- Set TrackLog to Log at an interval (I prefer time set to 5 or so seconds)
- Turn GPS to the page where you can see the time and date

Digital Camera: Set up as follows:

- Ensure date/ time is set correctly
- Turn date/time **off** so that it is not burned onto photo
- Check batteries
- Turn on Camera and check things work ahead of time
- Set resolution settings on camera as appropriate for job

**In the Field:**

- GPS **must** be collecting an active tracklog when you do this next step. You must initiate tracklog

- Take picture of the GPS screen showing the time and date. It may be best to use MACRO mode. This picture is critical, so be sure you can see the date and time clearly on the photo. A TIP: tilt the gps screen slightly away from you to minimize flash.
- Now run around collecting pictures.
- Track must be collecting when collecting pictures. You can turn GPS off / Camera off, but the GPS must be collecting tracks when collecting photos.
- When done for the day, turn off GPS Track Log before returning to inside. DO NOT SAVE ACTIVE TRACK, but keep the active log available.

**Back in the Office**
**Software: Start GPS PhotoLink and Follow the Wizard**

- Connect GPS to PC with Cable.
- Transfer Digital Images from Camera to PC – note where you put the images
- Make sure you use the DATUM Tab and switch to NAD27 (excluding Aleutian Islands)
- Make sure the time is set to (GMT – 0900) Alaska and adjust for Daylight Savings time if between April and October of each year.
- Follow next steps entering the time correctly on the photo of the GPS receiver.
- On last step, be sure to select Create ESRI shapefiles and web.



TIPS: View the Picture.html generated from the process. Four Internet map engines are available from clicking in the HTML. Best luck with Lost Outdoors and TerrServer.

## Cheat Sheet: How to link digital images to MS Access database

Version date: 2003

**Author(s) of Sheet:** Angie Southwould, NPS/AKSO – OR BILL E.

**Website:** n/a

**Purpose:** See below. *In development*.

### Assumptions:

- MS Access XP or higher
- Images are stored in a MS Access database, such as ThumbsPlus
- Images has been processed, at least initially.

**Concept**

Field data collection is often accompanied by photography of the collected items or surrounding areas. There is a need to view these digital images and other scanned documents, such as the field entry forms, in Access alongside the tabular data. Although Access has the ability to store these images within the database, it is not always practical within the NPS environment.
The Photo Viewer Tool provides the functionality to associate tabular data in Access with digital images stored anywhere on a user's local machine or on network drives. Once linked, a form may then call up and display the images that are related to each record. The viewer gets refreshed as the user navigates through records. An additional feature allows the user to open the full size image for viewing or modification.



**Strategy**

This tool consists of an Access form and several tables. Information about the images and parent links is entered into these tables. Maintaining the setup information in tables rather than "hard-coding" them allows for great flexibility in storing and sharing images. If desired, each image could reside in it's own independent directory structure. A single database change can update the location of hundreds of images that may have been moved to a new directory structure.

Additionally, the user can specify the software into which each image type will be opened for full size viewing and editing.

**Usage**

A setup process copies the required objects into the user's Access database. This includes the viewer form and several tables. The user sets up the image links by populating these tables. One table contains a reference to each image stored on a local or mapped drive. Another table relates each image to the corresponding data in the users own tables. The remaining tables contain supporting information required by the viewer. The viewer form may be used as a standalone window or as part of an existing form. As an independent form, the user can trigger the viewer to open with the click of a button. Or the user can embed the viewer as a sub-form and the viewer will be automatically refreshed as the user scrolls through records. Each image may be opened and displayed in its original format.

**Future**

This tool is in its first stages of development. The tool currently handles any image type. We foresee a possible expansion to allow for the viewing of any document type. We may also incorporate the ability to resize the photo viewer to allow for thumbprint size images that take up less space in an embedded form.

## Cheat Sheet: How to resize images for presentations

Version date: March 5, 2004

**Author(s) of Sheet:** Roy Irving, Redwood National and State Parks
Revised by Dorothy Mortenson, NPS/SWAN

**Purpose:** This Cheat Sheet describes how to reduce the size of an image for the purpose of a presentation, such as in PowerPoint. Reducing the size of the image will reduce the overall file size. This will help in running the presentation, transferring the presentation via e-mail, and printing.

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**Assumptions:**
User has MS PowerPoint software.
User has MS Photo Editor or another photo editor.

**Background:**

- The key is to use appropriately sized and compressed graphic files, such as jpg and gif.
- Most digital image projectors operate at either 800x600 or 1024 x 768 resolution. However, high definition digital projectors (1280 x 1024) are becoming more common, several are in use at NPS sites in Alaska. Use the sizes below as a guide – but know your projector! If your image will take up ¼ of a 800x600 screen, the image only needs to be at 400x300. If using a 1024x768 screen, the image will need to be 512x384.
- If the projector is unknown, assume the resolution to be 1024x768. These instructions make this assumption.



**How To:**

- Resize images BEFORE inserting. Resizing them after they are in PowerPoint does not reduce the file size.
- Open your image in a photo editor. These instructions will assume using MS Photo Editor. Other software can be used and will follow a similar procedure.
- Select View -> Measurement Units. Select pixels. You only have to do this once.
- Select Image -> Resize
- For vertically oriented images (portrait), change the height to the same (or less) height as your computer screen. For example: 768 for 1024x768 screens.
- For horizontally oriented images (landscape), change the width to the same (or less) width as your computer screen. For example: 1024 for 1024x768 screens. Ensure the height is no larger than height as your computer screen. The image will adjust proportionally.

- The above description is for full screen images. Adjust these proportionally to the size you want to use. (1/4 of the screen – multiply the portion by the screen width or height: .24 x 1024 =512 pixels for the width)
- File -> Save As -> jpg (or .gif) -> More. Select quality (default at 50 is usually adequate). Click OK. Note: Save as .jpg for full color photos or .gif for clip art/minimal color images (<256)
- Open PowerPoint and go to the slide where the image will be used.
- Insert -> Picture -> From File. Navigate to the image. Click Insert.
- DO NOT copy/paste image from the Photo Editor.
- Position image as desired.

## Cheat Sheet: How to set up a digital camera for the field

**Author(s) of Sheet:** First Last, Park or Organization

**Website:** http://www.nps.gov/??

**Purpose:** Provide tips on how to do...

**Assumptions:**

**How to:**
Instructions for how to .... here....

## Cheat Sheet: Tips for taking photos in the field

**Author(s) of Sheet:** Dorothy Mortenson, NPS/SWAN - anyone (others!!!)

**Website:** http://www.nps.gov/??

**Purpose:** Provide tips on how to do...

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**Tips: Photo of a small object such as a plant**

- Use a ruler or standard object in the picture.
- ...
- ...

**Tips: Photo of a site, looking in, such as a camp site or weather station**

- Take cardinal photographs. Use a colored and lettered cube in the photo to ensure direction does not get confused. Note colors in field notebook.

**Tips: Documenting photos in field notebook**

- ...